



Fig. 2

The diagram illustrates a process for separating CO₂ from an inlet gas stream. The process begins with an **INLET GAS STREAM** (14) entering a system. A valve (110) controls the flow into a pump (16). The gas then passes through a heat exchanger (18) and a pump (20) before entering a **REBOILER/SEPARATOR** (74). The separator has two outlets: a top gas stream (76) and a bottom liquid stream (78). The liquid stream (78) flows through a pump (72) and a heat exchanger (22) before entering the bottom of a **DISTILLATION COLUMN** (24). The distillation column has several internal trays (26, 32, 34, 36, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000). The top product is **CO₂ ENRICHED LIQUID PRODUCT** (84), which flows through a pump (86) and a valve (88) to a **PERMEATE GAS COMPRESSOR** (56). The bottom product is **CO₂ ENRICHED GAS PRODUCT** (108), which flows through a pump (112) and a valve (110) to a **MEMBRANE UNIT** (48). The membrane unit has two outlets: a top gas stream (54) and a bottom liquid stream (58). The liquid stream (58) flows through a pump (60) and a valve (62) to a **PRIMARY REFLUX DRUM** (38). The gas stream (54) flows through a pump (64) and a valve (66) to a **SECONDARY REFLUX DRUM** (96). The gas stream (58) flows through a pump (68) and a valve (70) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (72) and a valve (74) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (76) and a valve (78) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (80) and a valve (82) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (84) and a valve (86) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (88) and a valve (90) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (92) and a valve (94) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (96) and a valve (98) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (100) and a valve (102) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (104) and a valve (106) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (108) and a valve (110) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (112) and a valve (114) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (116) and a valve (118) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (120) and a valve (122) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (124) and a valve (126) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (128) and a valve (130) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (132) and a valve (134) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (136) and a valve (138) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (140) and a valve (142) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (144) and a valve (146) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (148) and a valve (150) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (152) and a valve (154) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (156) and a valve (158) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (160) and a valve (162) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (164) and a valve (166) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (168) and a valve (170) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (172) and a valve (174) to a **HYDROCARBON GAS PRODUCT** (116). The liquid stream (54) flows through a pump (176) and a valve (178) to a **PERMEATE GAS COMPRESSOR** (56). The gas stream (58) flows through a pump (180) and a valve (182) to a **HYDROCARBON GAS PRODUCT**

Fig. 3

